

<110> Hart, Charles E.  
Topouzis, Stavros

<130> 00-100

<151> 2000-10-30

<170> FastSEQ for Windows Version 3.0

<213> Homo sapiens

<222> (226)...(1338)

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 cagggcgagc gcaggcgcg agagcgcagg gcggcgcgcc gtcggtccc ggagcagaac 180  
 ccggcttttt cttggagcga cgctgtctct agtcgctgat cccaa atg cac cgg ctc 237  
 Met His Arg Leu  
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atc ttt gtc tac act cta atc tgc gca aac ttt tgc agc tgt cgg gac 285  
Ile Phe Val Tyr Thr Leu Ile Cys Ala Asn Phe Cys Ser Cys Arg Asp  
5 10 15 20

act tct gca acc ccg cag agc gca tcc atc aaa gct ttg cgc aac gcc 333  
Thr Ser Ala Thr Pro Gln Ser Ala Ser Ile Lys Ala Leu Arg Asn Ala  
25 30 35

aac ctc agg cga gat gag agc aat cac ctc aca gac ttg tac cga aga	381
Asn Leu Arg Arg Asp Glu Ser Asn His Leu Thr Asp Leu Tyr Arg Arg	
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gat gag acc atc cag gtg aaa gga aac ggc tac gtg cag agt cct aga	429
Asp Glu Thr Ile Gln Val Lys Gly Asn Gly Tyr Val Gln Ser Pro Arg	
55 60 65	
ttc ccg aac agc tac ccc agg aac ctg ctc ctg aca tgg cgg ctt cac	477
Phe Pro Asn Ser Tyr Pro Arg Asn Leu Leu Leu Thr Trp Arg Leu His	
70 75 80	
tct cag gag aat aca cgg ata cag cta gtg ttt gac aat cag ttt gga	525
Ser Gln Glu Asn Thr Arg Ile Gln Leu Val Phe Asp Asn Gln Phe Gly	
85 90 95 100	
tta gag gaa gca gaa aat gat atc tgt agg tat gat ttt gtg gaa gtt	573
Leu Glu Glu Ala Glu Asn Asp Ile Cys Arg Tyr Asp Phe Val Glu Val	
105 110 115	
gaa gat ata tcc gaa acc agt acc att att aga gga cga tgg tgt gga	621
Glu Asp Ile Ser Glu Thr Ser Thr Ile Ile Arg Gly Arg Trp Cys Gly	
120 125 130	
cac aag gaa gtt cct cca agg ata aaa tca aga acg aac caa att aaa	669
His Lys Glu Val Pro Pro Arg Ile Lys Ser Arg Thr Asn Gln Ile Lys	
135 140 145	
atc aca ttc aag tcc gat gac tac ttt gtg gct aaa cct gga ttc aag	717
Ile Thr Phe Lys Ser Asp Asp Tyr Phe Val Ala Lys Pro Gly Phe Lys	
150 155 160	
att tat tat tct ttg ctg gaa gat ttc caa ccc gca gca gct tca gag	765
Ile Tyr Tyr Ser Leu Leu Glu Asp Phe Gln Pro Ala Ala Ala Ser Glu	
165 170 175 180	
acc aac tgg gaa tct gtc aca agc tct att tca ggg gta tcc tat aac	813
Thr Asn Trp Glu Ser Val Thr Ser Ser Ile Ser Gly Val Ser Tyr Asn	
185 190 195	
tct cca tca gta acg gat ccc act ctg att gcg gat gct ctg gac aaa	861
Ser Pro Ser Val Thr Asp Pro Thr Leu Ile Ala Asp Ala Leu Asp Lys	
200 205 210	

aaa att gca gaa ttt gat aca gtg gaa gat ctg ctc aag tac ttc aat 909  
 Lys Ile Ala Glu Phe Asp Thr Val Glu Asp Leu Leu Lys Tyr Phe Asn  
 215 220 225

cca gag tca tgg caa gaa gat ctt gag aat atg tat ctg gac acc cct 957  
 Pro Glu Ser Trp Gln Glu Asp Leu Glu Asn Met Tyr Leu Asp Thr Pro  
 230 235 240

cgg tat cga ggc agg tca tac cat gac cgg aag tca aaa gtt gac ctg 1005  
 Arg Tyr Arg Gly Arg Ser Tyr His Asp Arg Lys Ser Lys Val Asp Leu  
 245 250 255 260

gat agg ctc aat gat gat gcc aag cgt tac agt tgc act ccc agg aat 1053  
 Asp Arg Leu Asn Asp Asp Ala Lys Arg Tyr Ser Cys Thr Pro Arg Asn  
 265 270 275

tac tcg gtc aat ata aga gaa gag ctg aag ttg gcc aat gtg gtc ttc 1101  
 Tyr Ser Val Asn Ile Arg Glu Glu Leu Lys Leu Ala Asn Val Val Phe  
 280 285 290

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 Phe Pro Arg Cys Leu Leu Val Gln Arg Cys Gly Gly Asn Cys Gly Cys  
 295 300 305

gga act gtc aac tgg agg tcc tgc aca tgc aat tca ggg aaa acc gtg 1197  
 Gly Thr Val Asn Trp Arg Ser Cys Thr Cys Asn Ser Gly Lys Thr Val  
 310 315 320

aaa aag tat cat gag gta tta cag ttt gag cct ggc cac atc aag agg 1245  
 Lys Lys Tyr His Glu Val Leu Gln Phe Glu Pro Gly His Ile Lys Arg  
 325 330 335 340

agg ggt aga gct aag acc atg gct cta gtt gac atc cag ttg gat cac 1293  
 Arg Gly Arg Ala Lys Thr Met Ala Leu Val Asp Ile Gln Leu Asp His  
 345 350 355

cat gaa cga tgc gat tgt atc tgc agc tca aga cca cct cga taa 1338  
 His Glu Arg Cys Asp Cys Ile Cys Ser Ser Arg Pro Pro Arg \*  
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<212> PRT

<213> Homo sapiens

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Leu Arg Asn Ala Asn Leu Arg Arg Asp Glu Ser Asn His Leu Thr Asp  
35 40 45  
Leu Tyr Arg Arg Asp Glu Thr Ile Gln Val Lys Gly Asn Gly Tyr Val  
50 55 60  
Gln Ser Pro Arg Phe Pro Asn Ser Tyr Pro Arg Asn Leu Leu Leu Thr  
65 70 75 80  
Trp Arg Leu His Ser Gln Glu Asn Thr Arg Ile Gln Leu Val Phe Asp  
85 90 95  
Asn Gln Phe Gly Leu Glu Glu Ala Glu Asn Asp Ile Cys Arg Tyr Asp  
100 105 110  
Phe Val Glu Val Glu Asp Ile Ser Glu Thr Ser Thr Ile Ile Arg Gly  
115 120 125  
Arg Trp Cys Gly His Lys Glu Val Pro Pro Arg Ile Lys Ser Arg Thr  
130 135 140  
Asn Gln Ile Lys Ile Thr Phe Lys Ser Asp Asp Tyr Phe Val Ala Lys  
145 150 155 160  
Pro Gly Phe Lys Ile Tyr Tyr Ser Leu Leu Glu Asp Phe Gln Pro Ala  
165 170 175  
Ala Ala Ser Glu Thr Asn Trp Glu Ser Val Thr Ser Ser Ile Ser Gly  
180 185 190  
Val Ser Tyr Asn Ser Pro Ser Val Thr Asp Pro Thr Leu Ile Ala Asp  
195 200 205

10039347.100001

Ala Leu Asp Lys Lys Ile Ala Glu Phe Asp Thr Val Glu Asp Leu Leu  
 210 215 220  
 Lys Tyr Phe Asn Pro Glu Ser Trp Gln Glu Asp Leu Glu Asn Met Tyr  
 225 230 235 240  
 Leu Asp Thr Pro Arg Tyr Arg Gly Arg Ser Tyr His Asp Arg Lys Ser  
 245 250 255  
 Lys Val Asp Leu Asp Arg Leu Asn Asp Asp Ala Lys Arg Tyr Ser Cys  
 260 265 270  
 Thr Pro Arg Asn Tyr Ser Val Asn Ile Arg Glu Glu Leu Lys Leu Ala  
 275 280 285  
 Asn Val Val Phe Phe Pro Arg Cys Leu Leu Val Gln Arg Cys Gly Gly  
 290 295 300  
 Asn Cys Gly Cys Gly Thr Val Asn Trp Arg Ser Cys Thr Cys Asn Ser  
 305 310 315 320  
 Gly Lys Thr Val Lys Lys Tyr His Glu Val Leu Gln Phe Glu Pro Gly  
 325 330 335  
 His Ile Lys Arg Arg Gly Arg Ala Lys Thr Met Ala Leu Val Asp Ile  
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 Gln Leu Asp His His Glu Arg Cys Asp Cys Ile Cys Ser Ser Arg Pro  
 355 360 365  
 Pro Arg  
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 Met Gln Arg Leu Val Leu Val  
 1 5

tcc att ctc ctg tgc gcg aac ttt agc tgc tat ccg gac act ttt gcg 161  
 Ser Ile Leu Leu Cys Ala Asn Phe Ser Cys Tyr Pro Asp Thr Phe Ala  
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Thr Pro Gln Arg Ala Ser Ile Lys Ala Leu Arg Asn Ala Asn Leu Arg	
25 30 35	
aga gat gag agc aat cac ctc aca gac ttg tac cag aga gag gag aac	257
Arg Asp Glu Ser Asn His Leu Thr Asp Leu Tyr Gln Arg Glu Glu Asn	
40 45 50 55	
att cag gtg aca agc aat ggc cat gtg cag agt cct cgc ttc ccg aac	305
Ile Gln Val Thr Ser Asn Gly His Val Gln Ser Pro Arg Phe Pro Asn	
60 65 70	
agc tac cca agg aac ctg ctt ctg aca tgg tgg ctc cgt tcc cag gag	353
Ser Tyr Pro Arg Asn Leu Leu Leu Thr Trp Trp Leu Arg Ser Gln Glu	
75 80 85	
aaa aca cgg ata caa ctg tcc ttt gac cat caa ttc gga cta gag gaa	401
Lys Thr Arg Ile Gln Leu Ser Phe Asp His Gln Phe Gly Leu Glu Glu	
90 95 100	
gca gaa aat gac att tgt agg tat gac ttt gtg gaa gtt gaa gaa gtc	449
Ala Glu Asn Asp Ile Cys Arg Tyr Asp Phe Val Glu Val Glu Glu Val	
105 110 115	
tca gag agc agc act gtt gtc aga gga aga tgg tgt ggc cac aag gag	497
Ser Glu Ser Ser Thr Val Val Arg Gly Arg Trp Cys Gly His Lys Glu	
120 125 130 135	
atc cct cca agg ata acg tca aga aca aac cag att aaa atc aca ttt	545
Ile Pro Pro Arg Ile Thr Ser Arg Thr Asn Gln Ile Lys Ile Thr Phe	
140 145 150	
aag tct gat gac tac ttt gtg gca aaa cct gga ttc aag att tat tat	593
Lys Ser Asp Asp Tyr Phe Val Ala Lys Pro Gly Phe Lys Ile Tyr Tyr	
155 160 165	
tca ttt gtg gaa gat ttc caa ccg gaa gca gcc tca gag acc aac tgg	641
Ser Phe Val Glu Asp Phe Gln Pro Glu Ala Ala Ser Glu Thr Asn Trp	
170 175 180	
gaa tca gtc aca agc tct ttc tct ggg gtg tcc tat cac tct cca tca	689
Glu Ser Val Thr Ser Ser Phe Ser Gly Val Ser Tyr His Ser Pro Ser	
185 190 195	

ata acg gac ccc act ctc act gct gat gcc ctg gac aaa act gtc gca Ile Thr Asp Pro Thr Leu Thr Ala Asp Ala Leu Asp Lys Thr Val Ala 200 205 210 215	737
gaa ttc gat acc gtg gaa gat cta ctt aag cac ttc aat cca gtg tct Glu Phe Asp Thr Val Glu Asp Leu Leu Lys His Phe Asn Pro Val Ser 220 225 230	785
tgg caa gat gat ctg gag aat ttg tat ctg gac acc cct cat tat aga Trp Gln Asp Asp Leu Glu Asn Leu Tyr Leu Asp Thr Pro His Tyr Arg 235 240 245	833
ggc agg tca tac cat gat cgg aag tcc aaa gtg gac ctg gac agg ctc Gly Arg Ser Tyr His Asp Arg Lys Ser Lys Val Asp Leu Asp Arg Leu 250 255 260	881
aat gat gat gtc aag cgt tac agt tgc act ccc agg aat cac tct gtg Asn Asp Asp Val Lys Arg Tyr Ser Cys Thr Pro Arg Asn His Ser Val 265 270 275	929
aac ctc agg gag gag ctg aag ctg acc aat gca gtc ttc ttc cca cga Asn Leu Arg Glu Glu Leu Lys Leu Thr Asn Ala Val Phe Phe Pro Arg 280 285 290 295	977
tgc ctc ctc gtg cag cgc tgt ggt ggc aac tgt ggt tgc gga act gtc Cys Leu Leu Val Gln Arg Cys Gly Gly Asn Cys Gly Cys Gly Thr Val 300 305 310	1025
aac tgg aag tcc tgc aca tgc agc tca ggg aag aca gtg aag aag tat Asn Trp Lys Ser Cys Thr Cys Ser Ser Gly Lys Thr Val Lys Lys Tyr 315 320 325	1073
cat gag gta ttg aag ttt gag cct gga cat ttc aag aga agg ggc aaa His Glu Val Leu Lys Phe Glu Pro Gly His Phe Lys Arg Arg Gly Lys 330 335 340	1121
gct aag aat atg gct ctt gtt gat atc cag ctg gat cat cat gag cga Ala Lys Asn Met Ala Leu Val Asp Ile Gln Leu Asp His His Glu Arg 345 350 355	1169

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aaatatcatt	aatttctata	tacataaaca	taggaattca	cttatcaata	gtatgtgaag	1395
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attcagtata	tttactg					1472

$\langle 400 \rangle$  4

Met	Gln	Arg	Leu	Val	Leu	Val	Ser	Ile	Leu	Leu	Cys	Ala	Asn	Phe	Ser
1				5					10					15	
Cys	Tyr	Pro	Asp	Thr	Phe	Ala	Thr	Pro	Gln	Arg	Ala	Ser	Ile	Lys	Ala
			20					25					30		
Leu	Arg	Asn	Ala	Asn	Leu	Arg	Arg	Asp	Glu	Ser	Asn	His	Leu	Thr	Asp
		35					40					45			
Leu	Tyr	Gln	Arg	Glu	Glu	Asn	Ile	Gln	Val	Thr	Ser	Asn	Gly	His	Val
	50					55					60				
Gln	Ser	Pro	Arg	Phe	Pro	Asn	Ser	Tyr	Pro	Arg	Asn	Leu	Leu	Leu	Thr
65					70					75					80
Trp	Trp	Leu	Arg	Ser	Gln	Glu	Lys	Thr	Arg	Ile	Gln	Leu	Ser	Phe	Asp
			85						90					95	
His	Gln	Phe	Gly	Leu	Glu	Glu	Ala	Glu	Asn	Asp	Ile	Cys	Arg	Tyr	Asp
			100					105					110		
Phe	Val	Glu	Val	Glu	Glu	Val	Ser	Glu	Ser	Ser	Thr	Val	Val	Arg	Gly
		115					120					125			
Arg	Trp	Cys	Gly	His	Lys	Glu	Ile	Pro	Pro	Arg	Ile	Thr	Ser	Arg	Thr
	130					135					140				
Asn	Gln	Ile	Lys	Ile	Thr	Phe	Lys	Ser	Asp	Asp	Tyr	Phe	Val	Ala	Lys
145				150						155					160
Pro	Gly	Phe	Lys	Ile	Tyr	Tyr	Ser	Phe	Val	Glu	Asp	Phe	Gln	Pro	Glu
			165						170					175	
Ala	Ala	Ser	Glu	Thr	Asn	Trp	Glu	Ser	Val	Thr	Ser	Ser	Phe	Ser	Gly
		180					185						190		
Val	Ser	Tyr	His	Ser	Pro	Ser	Ile	Thr	Asp	Pro	Thr	Leu	Thr	Ala	Asp
	195						200					205			



Ala Leu Asp Lys Thr Val Ala Glu Phe Asp Thr Val Glu Asp Leu Leu  
 210 215 220  
 Lys His Phe Asn Pro Val Ser Trp Gln Asp Asp Leu Glu Asn Leu Tyr  
 225 230 235 240  
 Leu Asp Thr Pro His Tyr Arg Gly Arg Ser Tyr His Asp Arg Lys Ser  
 245 250 255  
 Lys Val Asp Leu Asp Arg Leu Asn Asp Asp Val Lys Arg Tyr Ser Cys  
 260 265 270  
 Thr Pro Arg Asn His Ser Val Asn Leu Arg Glu Glu Leu Lys Leu Thr  
 275 280 285  
 Asn Ala Val Phe Phe Pro Arg Cys Leu Leu Val Gln Arg Cys Gly Gly  
 290 295 300  
 Asn Cys Gly Cys Gly Thr Val Asn Trp Lys Ser Cys Thr Cys Ser Ser  
 305 310 315 320  
 Gly Lys Thr Val Lys Lys Tyr His Glu Val Leu Lys Phe Glu Pro Gly  
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 His Phe Lys Arg Arg Gly Lys Ala Lys Asn Met Ala Leu Val Asp Ile  
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109307 "ZHEB" 109307

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